Measles immunisation: why have we failed?

Measles is still a significant cause of illness in British children although a safe and effective vaccine has been available here since 1968. 1982 was a particularly bad year with a steep increase in the notification rate of measles that probably represents only a fraction of the real incidence. Thousands of children have been ill; many have had troublesome complications; and a few may even have died or suffered permanent damage, all quite unnecessarily. If we consider the extra demands placed on the medical and nursing services by such epidemics, not to mention the countless hours of anxiety for parents, it is surprising that this continuing problem has not attracted greater medical, public, or political attention.

Is this dismal picture just an unfortunate side effect of the ill-judged and ill-informed publicity that accompanied the recent campaign for compensation for infants damaged by pertussis vaccine? For a number of reasons this is unlikely.¹ Undoubtedly there has been some erosion of public confidence. Many doctors and nurses have become less enthusiastic in promoting immunisation and have chosen to practise defensively by finding all kinds of excuses to postpone or avoid it because of anxiety about the medical (and legal) consequences of a vaccine reaction. All this notwithstanding, our overall record (and that of some other western European countries) has never been as good as that of the USA where, if anything, patients (and parents) are much more litigious. It is more likely that our poor performance reflects differences in attitude that are most apparent in public and professional apathy and in national immunisation policies.

Measles in the USA

In April 1977, Joseph Califano, then Secretary of Health Education and Welfare, announced a nationwide initiative to raise measles immunisation levels to 90% by October 1979. The initial success of this programme was so encouraging that by October 1978 he was able to announce the goal of total elimination of indigenous measles by 1 October 1982. That this has nearly been accomplished is a remarkable triumph of determination and organisation that deserves our admiration.² During 1980, of the USA's 3144 counties, 77% were free of measles for the entire year. In 1981, the total number of cases reported in the whole of the USA was exceeded by the number

of cases notified in Scotland with only one-fiftieth of the population.

There were three major parts to the American programme: the attainment and maintenance of high immunisation levels, effective surveillance, and a vigorous response to reported cases. All these contain important lessons for the UK.

Achievement of high immunisation levels

In the USA the uptake of measles vaccine now approaches 90%. In this country a few areas have achieved vaccine acceptance rates greater than 70% but, as can be deduced from the overall average of just over 50%, there are many areas where vaccine uptake is poor. Some possible reasons for this are worth considering.

Attitudes and ignorance. There is a widespread belief that measles is a trivial or innocuous disease. Many parents and even some doctors (except perhaps those with personal experience of children with measles encephalitis) have to be convinced that measles immunisation is preferable to the natural disease. This may all be part of general apathy towards preventive medicine and the promotion of health, but much of it is based on a surprising degree of ignorance about measles vaccine and measles immunisation. By now the safety of the vaccine is well established. Although a mild febrile illness, or 'mini-measles', is common, serious side effects are rare.³ It is effective but must be stored, reconstituted, and administered correctly. Inadequate storage and improper use may be responsible for many so-called 'vaccine failures'. There is ignorance about the true contraindications. While these are important they are few in number and can be listed briefly: (1) Children who are suffering from malignant conditions in which the normal immunological mechanisms may be impaired. (2) Children who are receiving corticosteroid or immunosuppressive treatment including radiotherapy. (3) Although rarely relevant in children, persons hypersensitive to neomycin or polymyxin should not be given the vaccine.

Most so-called 'contraindications' are false and not based on any scientific evidence. Paediatricians are used to hearing all kinds of excuses for vaccine refusal from eczema to epilepsy in an aunt, from hay fever to hydrocephalus, from prematurity to

penicillin allergy. In certain children who are in poor physical condition—for example those with cystic fibrosis, or those with a personal history of convulsions—the doctor might consider giving a modifying dose of 0.5 ml normal human immunoglobulin at the same time as measles vaccination. In any event, severe neurological complications are substantially less common from the vaccine than from natural measles.⁴ In the USA it is becoming apparent that the dreaded sequelae of acute measles encephalitis and subacute sclerosing panencephalitis have nearly disappeared.

Policy. In this country immunisation policies are determined by the DHSS Joint Committee on Vaccination and Immunisation and its sub-committees. These committees are part of a cumbersome bureaucracy that seems slow to react to new developments or changing circumstances. Being governmental committees they are cautious to an extent that seems, to me at least, to inhibit an aggressive immunisation policy. Until recently, their guidelines on immunisation practice have been restrictive in tone, yet vague and lacking in conviction. They have been difficult to interpret, even by experts.⁵ It is not surprising that general practitioners and other doctors and nurses who actually do the immunising have felt confused and legally vulnerable if they exercise their own judgement. In contrast, American policies seem simple, brief, and sufficiently dogmatic to allow easier interpretation and more confident application. One possible reason for these differences is that the American guidelines are issued and regularly updated (in the well-known Red Book) by the Committee on Infectious Diseases of the American Academy of Pediatrics.⁶ This committee is independent of government and composed of practising paediatricians with other experts in infectious disease and immunology.

Legislation. Perhaps the most important component of the American programme has been the enactment and enforcement of laws requiring proof of measles immunity as a condition of entry to schools, day nurseries, nursery schools, and other organised groups. For various religious and other reasons, parents can 'opt out' of this requirement, but the result of the legislation is that 96% of children entering school for the first time are immune to measles, and very few cases of natural measles now occur in children of school age.²

A standard record. A single standard immunisation record for each child has been an important part of the USA programme. As is stated in the Red Book,

'The committee strongly urges that every parent of newborn infant be given this type of record; it should be accorded the status of a birth certificate or passport and be retained with vital documents for subsequent referral'. In this country some children are immunised by their general practitioners, some at local authority clinics, and some even in hospital. Various methods of recording are used so that there may be confusion and delay in identifying children who are immune or non-immune.

Availability of vaccine. Measles vaccine has been available in the UK since 1968 but getting it to eligible infants still leaves too much to parent initiative. The timing of optimum immunisation (15 months of age) means that it is separated from the primary course of immunisation normally completed 6 months earlier. Unless those concerned take active steps to check and recall infants for measles immunisation many will default. Many mothers become confused about which immunisation is which and will not return to a clinic routinely unless reminded. In any case, attending clinics is difficult for mothers who work and unpopular with mothers from deprived homes. Other schemes to suit them are all too rare.

Effective surveillance

The notification of childhood infectious disease has never been satisfactory. Passive forms of surveillance provide an underestimate of morbidity in practice and the careless and often inaccurate labelling of many rashes as 'measles' is potentially harmful as it deprives vulnerable children from protection. Active surveillance by the community child health service could include the regular weekly checking of general practices, schools, and day nurseries for the presence of measles and the initiation of appropriate responses.

Response to reported cases

In the USA programme all reported cases are investigated within 24 hours and contacts who are exempt from immunisation for various reasons are excluded from school for 2 weeks. Appropriate responses to an active surveillance system include the investigation of all reported cases to confirm the diagnosis; and the identification of others at risk so that they can be immunised. In this way the spread of infection can be controlled. In the UK paediatricians can play an important part in surveillance by arranging for the immunisation of contacts of those children who develop measles after admission to hospital, by immunising other

susceptible children who are identified during hospital admission, and by urging the immunisation of any non-immune children they identify at their outpatient clinics.

What else can we do?

The results of the American initiative speak for themselves. There are a few other ways by which we might improve our lamentable record.

(1) We could urge more effective and better informed publicity on immunisation in general and on measles in particular. We should consider it as irresponsible to deny immunisation to infants without valid reason as it is to immunise infants when definite contraindications exist. Parents should be encouraged to demand measles protection for their infants as soon as they are eligible, at 15 months.

(2) We could give credit and publicity to regions and practices where excellent immunisation levels have been achieved and morbidity is correspondingly low. Conversely, practices or regions that cannot show satisfactory levels of immunisation (at least 70%) among their child patients might be asked for explanations. In certain circumstances it may be necessary to make other arrangements for immunisation. For example, immunisation in the home or in mobile clinics could be made available through the community child health service.

(3) Paediatricians could play a much more active part in advocating and supporting immunisation policy and practice. Locally, they can encourage the general practitioners, health visitors, and nurses to achieve high rates of vaccine uptake through advising on special problems, indications, and contraindications. Nationally, they could become more involved in promoting immunisation and be prepared, perhaps through the BPA, to respond to public alarm about immunisation 'scares' with accurate and up-to-date advice. For the media they could provide balanced information to counter attacks on immunisation that seem so often to worry parents by magnifying disproportionately the

frequency and severity of vaccine side effects rather than the risks of the natural disease.

(4) Perhaps it is time that our politicians were persuaded to consider a better legislative framework for national immunisation policies. We should insist on immunity to measles before allowing entry to communal groups—such as day nurseries, play groups, and primary school—where infection will spread. Proof of immunity might include a clear history of natural measles or immunisation. If there is only a doubtful history of measles or immunisation a child should be considered as non-immune and should be immunised.

(5) We should reconsider our attitude to other preventable illness. An additional bonus of the American experience on measles is the broad protection afforded by the triple vaccine against measles, mumps, and rubella given as one injection at 15 months. Our rubella programme is still unsatisfactory and mumps is not even included in our routine schedule of immunisation. Once again we compare most unfavourably with the USA, but that is another story.

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